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THE 50 MHz DX BULLETIN

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VOLUME #2 (J U L Y 1 9 9 1) ISSUES #12/#13

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N O R T H A M E R I C A N N E W S

FS/KA3B DX-PEDITION RESULTS (JUNE 1991): The Coralita Beach Hotel in French St. Martin proved to be an excellent location for a DXpedition. Not only was there beautiful scenery and a very friendly hotel staff, the hotel itself had only one TV set in their 2nd floor lounge which no one watched. Also taking into account that the local TV stations only transmit about 10-12 hours a day, it was evident that operating from FS (and the Coralita, in general) was more than a 6M DXpeditioner could ask for. Unfortunately, I was "snake-bit" again when it came to having decent propagation to the North American mainland. During my 8-day operatior only 26 QSO's were made into 8 different countries...very frustrating!

Uncanny as it may seem, the FY7THF beacon was copied every day for hours on end, at practically any time of the day or night. The YV5ZZ beacon also appeared for many hours on end for several days. Not surprising, my CQ's went unanswered each time. There is no one active at this time in FY and there are only a few YV's on, so getting no response didn't really surprise me. On the other hand, I copied the WB4WTC beacon on the morning of June 7th for one half hour. Calling CQ on 50.110 netted only 3 contacts. On the morning of June 11th I copied the CTØWW beacon for an hour and a half. Once again several CQ's on 50.110 netted no QSO's...very frustrating!

With all the RF floating around on the weekend of June 8-9, with the ARRL June VHF QSO Party and the U.K. Six Meter Group's Summer Es Contest, I figured that I would hear plenty - I was wrong. All day Saturday I heard absolutely nothing from North America or Europe - not even scatter. Suddenly at around 1910Z on Sunday I heard KZ2S/3 calling CQ weakly. After several calls we made contact. I then heard K3LNZ/8 very weakly and made contact with them as well. I then QSY'ed to 50.110 and began calling CQ. In 30 minutes time I contacted a measley 13 stations. Only a few were a true S9 and most were at the noise floor of my receiver. After working WZ8D at 1953Z the band dropped out. Strangely enough, this opening was some sort of "scatter" more than a direct Es opening. At the time I was beaming north (away from the states) at a "hot-spot" near VP9. At the time there were no signals present on 10 meters. My final days in FS were just as frustrating as I made only three more QSO's. On a side note, I had an incredibly reliable path into Bermuda for every day that both myself and Ted Goldthorpe (WA4VCC/VP9) were active. On some days Ted was S9++ for hours on end and I wasn't able to hear even a peep out of the stations he was working. Just about everyone I did QSO mentioned that FS was a new country for them. It is quite obvious that a return trip should be put on the agenda.

During the days that Ted (WA4VCC/VP9) and I had excellent propagation between us, we would often chat on 50.110 in an attempt to drum-up business. One day we both got into a discussion about choosing locations for the June Contest. Ted reminded me that when he and his group (the Carolina DX Association) went to FS in 1989 for the June Contest, they only made about 18 QSO's. Their group decided from that point on to operate from locations that are "one-hop Es" distance to the North American mainland. Taking that lead they did well from the Bahamas last year as C6AFR and performed admirably this year from Bermuda. It is in my opinion that DX locations that are double-hop distances from the US/Canada should be visited in late June and early July when double-hop seems to be more prevalent. However, one always takes a chance on a DXpedition.

The following stations were worked during the FS/KA3B operation: CU1EZ, K1RZ, KZ2S/3, K3LNZ/8, K4HJE, K8MFO, K8NXI, KE8BN, KE9I/8, LU2DEK, NW3C, N4HB, PZ1EE, P43AS, VE1XDX, VE1ZZ, VP9/WA4VCC, W3KWH, W4DR, WE4N, WA4DOU, WD4KPD, WB8JKR, WB8K/QRP, WZ8D, YV4DDK.

I am very sorry things didn't work out better. However, I promise to give it another try from FS very soon.

4B2SOL ECLIPSE 91 SPECIAL EVENT STATION: The Baja California Sur Amateur Radio Club invites worldwide hams to experiment during the total eclipse of the sun in this area on **July 11 (1851 UTC).** The special event station sponsored by the club is **4B2SOL.** It will be QRV from July 8 (0000Z) until July 14 (2400Z). All QSL's will be answered (BUT) those QSO's made between 1841Z and 1901Z on July 11th (during the darkness of the total eclipse), will receive a very special QSL card. The club will be QRV on all the HF bands (SSB, CW, RTTY) in addition to 2M and 6M. The 2M frequencies will be 144.200 and 144.250 MHz. The 6M frequencies will be 50.095, 50.110, and 50.150 MHz (SSB/CW). The grid square is DL44. For the commemorative QSL send along a business-size SASE with 2 IRC's or 1 green stamp. Please include the operators name on the envelope.
QSL INFO: Special Event Eclipse 91, P.O. Box 147, La Paz, B.C.S. 23000, Mexico

KG4DD GUANTANAMO BAY: The DX Bulletin which is published by Chod Harris VP2ML reports that Doug Donley KG4DD (the most active operator in KG4) is looking for a 6M rig and antenna to borrow until his tour ends in April 1992. If you can help, contact Doug at Box 692, FPO New York, NY 09593-0055 or via packet at KG4DD @ HH2PK. (Tnx TDXB).

WZ8D GRID EXPEDITION TO CANADA: John Walker WZ8D (ex: WB8IGY) sends along the following information concerning his July grid-trip to Canada:
"I will leave my Ohio QTH early July 8 or 9 for another grid-trip to Canada. My family and I will spend about 14 days most likely in Central and Western Ontario. I hope to activate many of the following grids:

EN57 EN58 EN48 EN49 EO40 EO30 EN39 EO31 EN29 EO20

I also hope to visit some VE4 grids and many in North and South Dakota. Many of these grids have never had 6M activity in them. My 6M schedule time for scatter will be about 1000Z on 50.125 MHz. During Es openings look for me also at 50.135 MHz. My equipment for mobile operation will be a Yaesu FT736R and a 150 watt brick with a dipole antenna. During fixed operation I will use a 5 element beam and 700 watts. Low band frequencies will be 28.885, 7.218, and 3,843 MHz. No pre-arranged schedules will be possible. Return QSL's require an SASE. Cards must have my call and the grid that I was active in. (Example: WZ8D/EO60). I will also be on 2M and 70cm with 220 MHz operation a possibility. The 2M frequency will be 144.190 MHz. Please note that 6 meters will be the main band, though. Thank you, John."
QSL INFO: John Walker WZ8D, 1930 Meredith Drive, Loveland, Ohio 45140-9613

ZF2QJ LITTLE CAYMAN DX-PEDITION: Bill Hassan WA1IML will be QRV on 6M from Little Cayman Island as ZF2QJ between June 29th and July 3rd. Look for him between 0900-1100 and 2100-2330 UTC each day. He will be using the equipment of Ron Sefton ZF8AA which consists of 100 watts output to a 5 element beam.
QSL INFO: Bill Hassan ZF2QJ, 6 Henry Street, Medway, Massachusetts 02053

CO2KK QSL SITUATION: While operating from French St. Martin I had the opportunity to speak with Joe Schroeder W9JUV about his management of CO2KK's 6M QSL's. Joe told me that he is only handling QSL requests for contacts made after January 1, 1991. Please note that Arnie CO2KK is not sending Joe his 6M logs. When Joe finds Arnie on 28.885 they move off to another frequency and the 6M QSL's received by Joe are verbally confirmed by Arnie. Upon confirmation that a contact was in fact made (and after getting the returned signal report from Arnie for QSL purposes), the confirmation is then mailed off. Joe requests that you PLEASE DO NOT CALL HIM AT HOME OR SEND ALONG 2ND REQUESTS. Sometimes a few weeks will go by before he can meet with CO2KK on the air. Please have patience! Gene W4OO has the old CO2KK logs, however, there is a large gap in the logs that apparently can't be accounted for. W400 has logs from Fall 1988 to mid-April 1990 (missing May 15-Aug 16, 1989)
QSL INFO: Joseph Schroeder Jr. W9JUV, P.O. Box 406, Glenview, Illinois 60025

FM5WD QSL SITUATION: Lucien FM5WD points out that although he has a QSL Manager (W3HNK), please send all 6M QSL's direct at: Lucien Prudent, Box 879, F-97203 Fort de France Cedex, Martinique

CY9CWI ST. PAUL ISLAND: It was reported in the June issue of QST Canada that 7 members of the Montreal area West Island ARC hope to operate from St. Paul Island, Friday (August 2) through to Tuesday (August 6), using the call CY9CWI. Plans are to run 3 stations on 160-10M plus the WARC bands. (I have been told that the group was approached to include 6M capability. Although I hope they do, past experience has shown that 6M stations activated by "HF-oriented" clubs usually winds up in a disaster.) St. Paul Island is located in the Cabot Straight, midway between Cape Breton Island and Newfoundland. Because it is an island (actually two islands), but not part of any Canadian province (it is administered directly from Ottawa), St. Paul is listed as a seperate DXCC country. More info when I receive it.

WA8MZQ GRID EXPEDITION TO CANADA: L. Bryan Snyder WA8MZQ sends along the following information concerning his July Canadian operation:
"We wish to inform you of a portable VHF operation that we plan to undertake during our vacation to Ontario this coming July. The dates of the trip are July 4-20, 1991. This trip is primarily a family and fishing holiday, but we hope to operate our portable station as much as possible. Plans are to be QRV on 6M with 150 watts and a 4 element yagi and on 2 meters with 300 watts and a 15 element yagi. We hope to operate from grid squares **EN85, EN95,** and **EN96.** When on 6M we will be on 50.125 at 6:30AM EDT (1030 UTC) for an hour or so depending on conditions. Other times during the day and night we will be on 50.125 to 50.175 MHz. When on 2M we will be on 144.200 and 144.150 in the mornings until 1:00PM EDT (1700 UTC) and in the evenings after 9:00 PM EDT (0100 UTC).

We hope to operate from **EN95** on the evening of Thursday, July 4, 1991, and on Friday, July 5, 1991. After this our operating times will vary. We hope to be on 7163 KHz (40M) plus or minus QRM from the fishing camp to let people know when we will be operating. As is always the case with this kind of operation, there are many variables beyond our control that could limit or prevent us from operating. We hope this will not be the case."
QSL INFO: L. Bryan Snyder WA8MZQ, 4415 Holiday Lane, Bellefontaine, Ohio 43311

REPORT FROM W7IDZ: Russ Patrick W7IDZ (WA DNO6) reports that the Aurora openings of early June were the most he has ever experienced from his Washington QTH. Contacts included VE5LY, NTØV, W1DGA, VE4AG, NW3C, WZ9D, and KA9LLP among others. Aurora was present on 6M as his QTH for 5 straight days, which is very rare for his part of the country. Russ further states that the band conditions at his QTH were below normal during the VHF Contest weekend. Aurora appeared on Saturday evening favoring the Northwest USA and then late Sunday afternoon the band opened towards the east via single and double-hop Es.
QSL INFO: Russ Patrick W7IDZ, Route 1 Box 167, Touchet, Washington 99360

MARYLAND FREESTATE 6M SSB NET: Auto-Call (the Official Journal of the Foundation For Amateur Radio) reports that the Maryland Freestate 6M SSB Net on 50.125 MHz which meets on Sundays at 2000 EDT has been growing of late. This net is sponsored by the Metropolitan Communications Network which represents 6M activity in the Greater National Capitol Area. Another net called the "Sunday Morning Coffee Net" is held at 0900 EDT on 50.400 MHz.

N O R T H A M E R I C A N N E W S

REPORT FROM W5FF: Fred Fish W5FF (NM DM64) sends along the following letter:
"Happily, I was the first completed QSO on 6M for ZK1AN; and K5FF was nearby to work him also; a new country for both of us (this on April 5th). On April 6th & 7th I worked LU1VK and LU8YYO, and then CE8ABF for a new grid. I still need a few more QSL's to get my 700 endorsement as I have 710 worked. April 21st saw a good opening to ZL; changing to a good VK opening starting at 0022Z on the 22nd. Worked 17 VK's until the band went out about 0230Z....almost like living in South Texas! April 22nd I worked 4 ZL's, FO5DR (first contact in quite some time), and PY5CC. On April 24th I worked the last few ZL's of this spring. May 18th brought a fine Es opening into Mexico with XE1GRR in long and strong. I also worked LU8EEM and CX8BE, as well as ZK1CG. May 19th I worked CX4HS; copied CO2KK calling CQ and then working N5JHV, a new one for Dave. Several W6's were also calling or working Arnie. There has been nothing since except for the typical infrequent Es openings, none into areas that I need. Still need FP, YN, Clipperton, etc.

Not too long ago Dr. G. O'Toole KB6ISL offered a special Pitcairn Island Bicentennial Award. Lee and I did make the required contacts and sent in our $5.00 checks to Dr. O'Toole in March 1990. The checks were cashed but nothing has been heard from him since. AT&T has no phone number listed for him at the address given which was 9605 San Gabriel Avenue, South Gate, California 90280. Hopefully one of your readers can supply a phone number or his present address - or has anyone ever received the promised award?

In closing, I worked up a couple of effective and easy modifications for the Icom IC551D that will let it monitor the range 45.110 through 53 MHz (or) 46 through 54 MHz if preferred. I sent a copy to Bob WA6BYA to see what he thinks of it."
QSL INFO: Fred Fish W5FF, P.O. Box 73, Edgewood, New Mexico 87015

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S O U T H A M E R I C A N N E W S

REPORT FROM PY5CC: Peter Zoch Sprengel PY5CC sends along the following report of DX worked during May:

MAY 1: 1205Z: ZC4JJ, 9H5BP, ZBØW, 9H4CM, CN8ST 1340Z: ZD8DX, VS6XLN 1853Z: FO5KF
1953Z: FS/NZ2Y, FS/JL1RUC, FM3AG 2056-2100Z: HI8W, K1TOL, VE1YX, WA1OJB/B, N1GEV
MAY 2: 1333-1344Z: PA3BFM, G3IMV, G4IJE, G3SVD, ON1CAK, PE1NOT, G1EUV, G4DCV, ON1CDQ, PA3EUI, G8BQX
MAY 4: 1341-1558Z: 9H5EC, 9H5AB, 9H1FL, SV1EN, 9H5BP, 9H1BT, 9H4CM
MAY 5: 0133Z: PY2BBL
MAY 7: 2307Z: PYØSR, PYØSK
MAY 8: 0041Z: PY2GNS, CX8BE
MAY 15: 2140Z: PYØFF
MAY 19: 2059-2218Z: Big opening to USA (W5, W6, W7, WØ) with 60 QSO's on SSB/CW.
MAY 22: 2053Z: PY5AQ

Peter reports that conditions were very bad during the other days in May. However, the ZD8VHF beacon was heard every day with very strong signals between 1900 to 2200 UTC. New countries worked included HI8W and PYØSR giving Peter a total of 104 countries worked with 79 confirmed.
QSL INFO: Peter Zoch Sprengel PY5CC, P.O. Box 07, Matinhos-PR 83260, Brazil

REPORT FROM PT7CB: Mauricio Moreira PT7CB sends along the following letter:
"There are currently two 6M operators in the Fortaleza area, myself and PT7NK. I am operational primarily on weekends while PT7NK is active every day. Next month we are expecting two more operators to become active on 6M - PT7BZ and PT7ZD."
QSL INFO: Mauricio Moreira PT7CB, P.O. Box 1329, 60001 Fortaleza, Ceara, Brazil

P43AS FK52 ARUBA: Juan P43AS reports that with the help of Bob W3BTX, he is now operational with a new Cushcraft 5 element 6M beam. He has been quite active of late looking for Es link-ups into the USA.
QSL INFO: Juan Noguera P43AS, POB 2380, Aruba

YV5ZZ BEACON: During my trip to French St. Martin the YV5ZZ beacon was copied most days. It is now running on 50.042 MHz in the FSK mode. The message reads: "YV5ZZ IN FK70 (then a series of dits)"

CE8ABF KEYER: CE8ABF in FD46 is reported to be running a keyer on 50.007 MHz.

PZ1EE QSL INFO: Haroen PZ1EE requests that QSL's be sent to him via WA4JTK.

LU2DEK QSL INFO: Manuel LU2DEK requests that QSL's be sent to him via LU2EE.

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VHF / UHF COLUMN RETURNS TO CQ MAGAZINE

The gods must have read my comments concerning CQ Magazine which appeared in Issue #10, page #1!!! Two weeks ago I received a telephone call from Joseph Lynch N6CL who is the new VHF/UHF columnist for CQ Magazine. We had a nice long chat about VHF'ing in general and 6 meters in particular. Joe seems very receptive to a few of the ideas I proposed to him and he will approach the "higher-ups" at CQ to see if possibly they can be implemented. His first column will appear around September (possibly earlier), and he wants all of you to send him your views on VHF'ing, what CQ can do to promote VHF'ing, and how improvements can be made to the CQ VHF WPX Contest (which will resume next year).

The first suggestion I made to Joe was to put the pressure on CQ to implement a WPX Award Program, at least starting with those active on 6M. I do not personally believe that most of those who are active on 2M and above can build large totals of prefixes, unless they are active on EME. However, a 10W station on 6M can build-up a very respectable WPX total, due to the international DX on the band. My second suggestion was to utilize a "double-multiplier system" in next year's VHF WPX Contest where both prefixes and grids are totaled together, much like the CQWW DX Contests on HF where countries and zones are counted. It may be unfair for me to say this, but the VHF WPX Contests of past years were 6 meter events....there was virtually no activity on 2M and above, even in the heavily populated Northeast Corridor. My third suggestion - make the July event the "CQ 6M WPX Contest." If you have any ideas or comments write to Joe Lynch N6CL, POB 73, Oklahoma City, Oklahoma 73101.

A S I A N N E W S

MONGOLIAN 6M ACTIVITY: The month of June saw activity on 6M from JU1JA, JT1CO, and JT/JA1OEM. Mako JA1OEM operated /JT and from the special club station (JT1CO) as a guest operator during the first two weeks of June. JU1JA was operated by JA1UT and others from grid ON37. This group worked into JA for the first time on June 1st and 2nd with more than 600 QSO's being made into all JA call areas. I received this information just prior to the publication deadline. More details may be forthcoming next month. (Tnx JA1VOK)

BT4AG CHINA: Yutaka JA9AG is planning to operate on 6M, 2M and 70cm as BT4AG from Suzhou, China from the afternoon of July 27th to the morning of July 28th. (Tnx JA1VOK)

UL7GCC KAZAKH: The following item was received from Neil Carr GØJHC:
"Mike UL7GCC is now QRV from 50.000 to 50.300 MHz using CW and SSB. He has been allocated the call **RL3Q/UL7GCC** for 6M and is using a transverter designed by UL7GAN. UL8GDD is also active from the same QTH in grid MN83kc. They have established a beacon on 50.055 MHz running 10W output and a beam antenna pointed towards Europe. On June 15th the beacon changed its call to UL8GDD. The beacon now operates 24 hours a day. Mike remarks that IRC's are not acceptable at the Post Offices in the Kazakh Republic and requests a green stamp for return postage."

A F R I C A N N E W S

PENGUIN ISLANDS (ZS1): The Awards Committee has voted 7-0 to add the Penguin Islands to the DXCC Countries List, effective November 15, 1945. Cards may be submitted September 1st. Cards submitted before September 1st will be returned. (Tnx Chod Harris VP2ML, The DX Bulletin)

9J2HN ZAMBIA: Peter 9J2HN (ex JK1UWY) has returned from his holidays in Japan and is active on the 6M band with an IC505 and a 6 element yagi. His first European opening took place on May 25th when he worked into Belgium and worked at least one G station - Mike G3VYF in Essex. His grid locator is KH45 with QSL's going via JH8BKL. (Tnx G4UPS & JA1VOK)

ZS6CE QSL INFORMATION: Several operators have commented that they were having difficulty in getting a confirmation from ZS6CE. The answer to their problem is quite simple - firstly the callsign ZS6CE no longer exists and secondly, Etienne has moved to a new QTH! Etienne had his ZS6CE callsign withdrawn and was issued **ZR6EMN** in its place. His grid locator has changed from KG34 to KG33xx and his new address is: Mr. E. Stewart, P.O. Box 14, Honeydew 2040, Republic of South Africa (Tnx Ted Collins G4UPS)

UPDATED AFRICAN QSL INFORMATION FROM ZS6BCR: Chris Burger ZS6BCR checked over my QSL Managers List and has sent along the following corrections:

V51Z goes to **OH2BH** (November 90 only) All others go to **ZS6BCR**

ZS9Z/ZS1 goes to **OH2BH**

ZS9Z goes to **ZS6BCR** (I had apparently listed ZS6BUR as the route...this is INCORRECT! I am sorry if this has caused any problems but this is why I would like everyone to take the time to double check the list and look for corrections. I am not perfect....Tnx KA3B)

9X5NH RWANDA: The following item was received from Neil Carr GØJHC:
"Hans 9X5NH informs me that he is QRV on 6M with a Kenwood TS680S at 10 watts output and a 5 element beam at 60 feet. He has yet to work his first station (up to early June). The only stations he has heard so far have been ZS6's talking to each other, but not responding to his "breaks.!" Hans has no previous experience on 6M and gives the impression that he has yet to be caught by the bug. He tends to switch on, hear nothing but noise, and switch off again."

N E W S F R O M O C E A N I A

ZK3F QSL INFO CORRECTION: Hatsuo Yoshida JA1VOK sends along the following:
"Could you please correct the QSL Manager List for ZK3F? JA1WHG is not the manager of ZK3F because the operator of ZK3F (5W1IU) incorrectly announced JA1WHG as the QSL handler without any agreement. The cards for ZK3F should be handled by 5W1IU himself after his return to JA this summer. By the way, all cards that were sent to JA1WHG have been stored there."

E U R O P E A N N E W S

REPORT FROM GJ4ICD: Geoff Brown GJ4ICD sends along the following:
"I write to you in urgency! Some friends of mine in France are frightened of losing their 50 MHz permits! Visiting amateurs to France are operating on 50 MHz using their C.E.P.T. Permits - THIS IS NOT ALLOWED! As far as I know, only French Nationals are permitted to operate in France. These stations who visit the country know they are doing wrong. It is very unfair to the Nationals of France and this on-going problem must be publicized. As far as I know the PTT in France have not issued any permits due to the complexity of power levels and their restricted areas, but I may be wrong. It's not the permits their interested in, just the Pirates. As for operating news I worked 4J1FS in KP40 for a new country (and GJ first) at 1716Z on May 24 and on June 6 worked 4X1IF for another new one."
QSL INFO: Geoff Brown GJ4ICD, TV Shop, Belmont Road, St. Helier, Jersey, Channel Islands

OH2AP/OJØ MARKET REEF: OH2BOZ, OH2BVM, OH2AUA, and SMØRBO will operate as OH2AP/OJØ Between July 7-15, 160-6 meters, CW, SSB, and RTTY. Qsl to OH2AP. All operators are stamp collectors; use of commemorative stamps is encouraged. (Tnx DXNS & TDXB)

T77C SAN MARINO: Tony T77C has had severe TVI problems over the past year and has not been too active. The situation does not look like improving in the near future, but he does hope to operate portable during the summer months. (Tnx GØJHC)

E U R O P E A N N E W S

ZBØX GIBRALTAR: Steve ZBØX had his first opening into Europe on May 7. His QSL information is via his QSL Manager, who is also his father! Both are members of the U.K. Six Metre Group. (Tnx G4UPS)
QSL INFO: Ron Jones G1OIB, 10 Ferndale Cres, Gobowen, Oswestry, Shrops SY11 3PJ, England

9H5AA NOW SIGNING 9H1AA: Congratulations to George Galea who has now passed his CW examination to become a Class A amateur. However, the change also means a new callsign; you may know George from his old callsign 9H5AA - he has been fortunate enough to obtain 9H1AA as his new call! (Tnx G4UPS)
QSL INFO: George Galea 9H1AA, 241 Dakota, St. Margaret Heights, Mosta, Malta G.C.

IG9/IK8HIO: I received word that Max IK8HIO is now active as IG9/IK8HIO in grid JM65. No other info was available except that QSL's go via IK8IUT.

4J1FS MALYJ VYSOTSKIJ: The annual joint UA-OH expedition to 4J1 was this year a very special expedition as they were also active on 6M. A special permit was granted by the Russian authorities for a fixed frequency operation on 50.120 MHz. 4J1FS worked into Europe (including the UK) on the 24, 25, 27 May, 1991. QSL information is via OH2BU. (TNX G4UPS)

(Several readers had sent me information on this operation, however, much of it was received way too late for inclusion in the last issue. Thanks anyway...KA3B)

REPORT FROM GØJHC: Neil Carr GØJHC sends along the following letter:
"Over here in IO83 the first 17 days of June must go down as the worst on record. There were only 3 days with any sort of Es skip logged on 6M. This made June 6 stand out as an "interesting day." As usual the band had been dead, then at 2050 UTC, I heard Mike VE1XDX talking to CU1EZ (no copy on the CU). Within a few minutes Mike had reached 59+40dB. I managed to attract his attention and we QSY'ed to 50.125 MHz. We were then joined by VE1ZZ and VE1MR. VO1QF also had a rock-crushing signal with no takers. Mike VE1XDX later told me he had only worked 9 G stations during the opening. I was copying Mike for almost 90 minutes at 59. Most of this time he was talking to other VE's which were not audible here. All previous Stateside openings experienced during the summer months from my QTH have followed very intense short-skip Es here in Europe. What makes this opening stand out from the norm is the fact that the 6M band had been dead all day until Mike opened the band at 2050 UTC. One never knows what will happen next!

The band finally opened up late on June 15. CN8ST was working his usual big pile-up. IK2GSO/IMØ (JN48) was also a popular catch. June 16 was the "big one" of the season with 6M full of DX for more than 17 hours!! Twenty (20) countries were logged. Catches of the day included HV3SJ, YU3EU (JN75), YU3AN (JN65), YU3ZM (JN86) and Bob Cooper CU3/K6EDX."

YUGOSLAVIAN STATIONS NOW QRV ON 6M: I have received word from several sources that all Class A licencees in Yugoslavia are now able to operate on 6M. It is reported that power output is restricted to 10 dBw with frequency coverage between 50.000 to 50.190 MHz. More info when I receive it.

MORE 6M PERMITS ISSUED IN ROMANIA: According to Neil Carr GØJHC (via IK2GSO) 6M permits have been issued to Alex YO9HP, Dick YO7VS, Mike YO7VY, and possibly some others. More info when I receive it.

G4UPS RESIGNS AS THE U.K.S.M.G. SECRETARY: Ted Collins G4UPS has resigned from his position as the Secretary of the U.K. Six Metre Group for personal reasons. The acting Secretary is now Chris Gare G3WOS.

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IMPORTANT PUBLICATION NOTE: Due to many reasons which I will not get into, issues #14 and #15 will be combined into one large newsletter. This large issue will be posted during the last week of July and will be mailed in an envelope.

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IMPORTANT PUBLICATION NOTE #2: Beginning with this double-issue (#12/#13), I am presenting the first four parts of a six-part series entitled **"50 MHz: Making The Most of It."** This excellent instructional series was written by Bob Cooper Jr, ZLØAAA/VP5D/K6EDX for publication in the New Zealand amateur magazine entitled "BREAK IN." While this series is directed at ZL's, there is an abundance of information which is applicable to anyone who is active on the 6M band. Bob had given me permission to use bits and pieces of this series to use as filler-material for this newsletter. However, after reading through the six-part series, I felt that it should be reproduced in full. Parts 5 and 6 will appear in next month's double-issue.

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L A T E - B R E A K I N G 6 M N E W S

The following 6M news was received just prior to the June 25th publication deadline and could not be included in the main body of the BULLETIN:

OX91REF GREENLAND: Laurent FJ5BL will be in Greenland from July 1 to August 1, 1991 as part of a scientific team. On HF he will use the call OX91REF. On 6M he will run a beacon signing **OX91BCN** on 50.100 MHz with the message "VVV DE OX91BCN QTH 74 NORTH 24 WEST PSE QSL F6AJA." It is not clear which callsign will be used on 6M. (Tnx GØJHC)

WWV UPDATES: The WWV Solar Report is now updated at 2118Z rather than 1818Z. The solar flux is currently being measured at a British Columbia station rather than from Ottawa. This has caused the change in the update hour. The K index will continue to be updated every 3 hours. (Tnx TDXB)

SOLAR-TERRESTRIAL WORKSHOP SCHEDULED: A Solar-Terrestrial Workshop will be held in Ottawa, Canada on May 18-22, 1992, at which representatives from around the world who have an interest in solar and geomagnetic data will discuss current advances in the field. The information gathered from the survey form which has been included with this newsletter (TNX to VE3DSS), will be used to discuss the need and uses of such data by the Amateur Radio community.

50|MHz: MAKING THE MOST OF IT
Part One of Six

by
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The author operated 6 meters from Houhora, North Island (RF65) between 15 December 1990 and 1 May 1991; using a 3 element beam 10 meters above ground, and 100 watts. As VP5D he worked more than 30 ZLs, most above 51 MHz. He earned 50 MHz WAS from K6EDX, W5KHT and is stuck on 49 states as VP5D. In 1957 he worked JA1AUH for the first-ever 50 MHz QSO between Japan and North America.

Bill Hamer, ZL2CD, writing in Break-In (January/February 1991) points out "(radio amateurs) find (six meters) exciting, in studying and exploiting propagation modes which are not found elsewhere". Here Bill has placed his pen onto the most significant argument favouring a high degree of 50 MHz activity from New Zealand. The record bears witness; ie:

1) Amateur 50 MHz operators 'discovered' TEP or trans-equatorial propagation and these 'amateur' findings in 1946-49 resulted in significant professional study of this phenomenon in the decade of the 50s. The findings of these studies caused virtually all nations within +/- 25 degrees of the geo-magnetic equator to rethink their 30-100 MHz frequency allocation tables. Many countries such as Argentina vacated low (54-76 MHz) TV channels as a result of these studies.

2) Amateurs discovered (random) meteor scatter propagation possibilities at 50 MHz (1951) leading to a mini-industry of forward-scatter high power VHF communication circuits throughout the world.

3) Amateurs observed and collected data on auroral reflections, again at 56 MHz starting in 1937, leading to serious VHF and UHF probing of auroral reflections by scientific circles in the late 40s and 50s. Once again, nations such as Canada, close to frequent auroral reflective activity, took this knowledge to heart and redesigned their frequency allocations.

4) Amateurs using 50 MHz have proven, repeatedly, that very long path E layer (ie. 'Sporadic-E') multiple-hop propagation can reach out to distances in excess of 5,000 miles (the equivilent of 4[+] E layer hops). That the E layer might produce multiple VHF reflections over such distances is still a mystery in scientific circles.

5) Amateurs using 50 MHz have collected proof of a form of F layer propagation (occuring close in time to the annual spring and fall equinox dates) which remains virtually unexplained; antipodal paths of 10,000 to 18,000 miles often with no evidence the signals contact or touch back to earth at any point except the opposite side of the earth. This defies all known theories of wave propagation.

This is by no means an exhaustive list of amateur 'discoveries'. It is intended to illustrate that the six meter amateur band, laying as it does at the boundary between HF (high frequency) and VHF (very high frequency), has been found to harbour forms of wave propagation which cannot be duplicated at ten meters or two meters; the two amateur bands laying on either side of six meters. There is even strong evidence suggesting that if mankind had known about the totally unique propagation characteristics found in this region of spectrum, we could not have 'selected' a better spot for the experiments to occur than 50-54 MHz.

So why should anyone care about such forms of propagation? On a measure of human development where the discovery of the transistor is rated '10' on a scale of 10, finding the answers to these 'boundary propagation modes' might not even make a 1. On the other hand, when Bell Labs scientists created the first transistor in 1947, their scientific papers widely reproduced included the caveat their device would 'never' be useful at frequencies higher than 1 MHz. You may know how pioneers at Sony paid a modest $25,000 (US) for the license to create transistors in Japan. Only two years after Sony personnel landed back in their home country, the world was overwhelmed with the very first AM miniature receiving sets. If each of was smart enough to quantify the signifance of each new scientific discovery, we'd all be multi-millionaires. Like the guys at Sony became.

Our Handicap

Conjure up the perfect six meter situation; someplace where ZL2TPY would journey with a kilowatt and stacked long boom ten element yagis to change the course of 50 MHz history.

A) The location would be within 25 degrees of the geomagnetic equator, north or south (if that doesn't register with you, stand by; we'll explain).

B) The location would be situated so signals would 'couple' into the trans-equatorial propagation 'ducts' both morning (to the east) and night (to the west); providing DX up to 18 hours (or more) per day, month in and month out.

C) The location would be situated where daytime F layer would offer DX from 6 to 10 hours per day during the magic October-December and February-April periods; just to 'sweep up' those missing parts of the earth we didn't reach on TEP.

D) Of course we'd have no local 50 MHz activity (amateur or commercial), no overhead power lines, and all TV would operate above 500 MHz. Our location would be atop a 1,000 meter hill situated on a narrow point of land 50 miles long so our radio horizon was minus 3 to 5 degrees for 350 degrees of our horizon. Oh yes, we'd be comfortably well off as not to have to work, and thereby miss 50 MHz DXing activities at anytime of day or night! And W3HNK would be our QSL manager.

There is no such location in New Zealand. There are such locations elsewhere. JA6 (western Japan) comes very close to being perfect. So too does PY0, ZD8 and 9H1. Sadly, New Zealand is quite poorly situated for 50 MHz propagation. Or ... is it?

Point: Until now, no 50 MHz two-way QSOs have taken place between any ZL station and stations in either Africa or Europe. Yes, we've been heard in both continents, and we've heard both. But no QSOs.

Point: If I add up ALL of the 50 MHz DX 'moments' between 1 January and 1 April, from my QTH in the far north, they are less than 1/15th of the 'DX time' recorded in the same period in Hawaii; 1/50th (or less) of the DX time logged in JA6.

Point: G4UPS, between 1 January and 1 April, worked all continents and 54 six meter countries. ZL2KT and ZL1MQ have yet to work 54 countries; after more than 30 years of trying. GJ4ICD worked all six continents in less than 24 hours several times in the same period. G4ASR worked all six continents within 3 hours one day in February. PY5CC worked four continents in 12 minutes one day in this period.

That's how good it can be, if you live in the 'right spot'. But in ZL?

THE NATURE OF 6 METER DX

I calculate there may be between 60 and 70 active ZL stations now on six meters. We all know the battles fought to obtain permission to operate in this band; against television channel 1 occupancy of 45-52 MHz. We also appreciate that if the RFS does grant you a 50 MHz permit, you may find so many television 'birdies' (the sum of sync pulses and color sub-carrier modulation) within the band that digging out weak (DX) signals is about as challenging as working Bouvet on 20 meter CW.

W5FF, the second amateur station to confirm DXCC on 50 MHz, recently recounted to me how he spent 31 minutes on 50 MHz CW contacting a 7Q7. No QRM, no pile up; just weak signals. VERY weak signals. It took more than a half hour to get his call through and a report, and to confirm both calls and reports. Fred is an extremely skilled CW operator, he runs one kilowatt from high in the New Mexico mountains and his six meter antenna is longer than many ZL backyards are wide. 31 minutes of diligent, skillful, frustrating 'work'.

In his first 100 six meter countries, W5FF worked more than half of them on CW. He had to; real six meter DX signals tend to be (a) weak, and, (b) very brief in their appearence. We'll talk about how brief later in this series. Fred's experience is hardly unique and the message is clear. If you are only adept at sideband quality signals, you will necessarily miss many six meter 'openings'. In my first Alaskan contact, the band was open for exactly 90 seconds; I timed it. Days later it was open for hours on end to Alaska but I doubt W5FF will ever hear 7Q7 again; in his lifetime. We'll explore why in next month's segment.

50 MHz Propagation
Sidebar/Box Material:
For Part #1

ZL CHANNEL 1 TV ALLOCATIONS:

. Outside of ZL, our 45.25 (nominal) TV video carriers are very important propagation indicators. This list of all (known) allocations on channel 1 will be helpful to you and your overseas 6 meter contacts. It would be useful to refine this list by adding whether TV1 or TV2 is carried by the individual transmitters since operating hours vary between '1' and '2' television.

Assigned Frequency	Location	Trans. Power	Network
45.239.6	RE54/S.I.	Low (unknown)	_____
45.240.0	RF72/N.I.	100,000 watts	_____
45.250.0	RE43/S.I.	100,000 watts	_____
45.250.0	RE67/S.I.	250 watts	_____
45.250.0	RE78/S.I.	100,000 watts	_____
45.260.0	RE33/S.I.	2,000 watts	_____
45.260.0	RE66/S.I.	500 watts	_____
45.260.4	RE44/S.I.	100,000 watts	_____
45.260.4	RE54/S.I.	1 watt	_____
45.260.4	RF64/N.I.	10,000 watts	TV2
45.260.4	RF80/N.I.	100,000 watts	_____
45.283.4	RE54/S.I.	1 watt	_____

50 MHz Propagation
Sidebar/box material
Part #1

WHO LISTENS WHERE/BEACONS:

In band beacons (typically operated 24 hours per day; like our own ZL3MHF on 50.043) are very important tools to tell you when there is six meter propagation to a distant point. Our own ZL3MHF beacon can be copied on backscatter as well although its modest antenna gain and power is barely adequate for such exercises.

Unfortunately, for every beacon there is, the world needs 100 more. Some beacons use directional antennas and modest power (ten watts is typical) and this combination means the band may be open to their area and you still won't hear them; if the directional antenna is sideways in lobe from you. The following beacons are useful for openings into specific areas but remember the tip of the iceberg characteristic of six meters; the beacon might be five miles 'down the road' from the small DX footprint and you will never hear it. All frequencies are from ZL0AAA as monitored in the CW zero-beat position of an Icom 575(H), rounded off to nearest KHz.

Station	Frequency	Station	Frequency	Station	Frequency
JA2IGY	50.009	JA6YBR	50.016	YV4AB	50.025
JA7ZMA	50.026	V73AT	50.035	YV5ZZ	50.042
ZL3MHF	50.043	JR6YAG	50.043	FO5DR	50.049
JA5FFJ	50.054	VK8VF	50.056	KH6HME	50.061
WD7Z	50.065	W7US	50.068	K6FV	50.069
KH6HI	50.071	VS6HI	50.075	TI2NA	50.079
VK2RHV	52.325	VK7RST	52.370	VK2RSY	50.420
VK2RGB	52.425				

50.110 has been established as an international CALLING FREQUENCY. Its purpose is to establish the fact the band is open, to someplace. Some DX stations (PJ9JT, FO5DR et al) stay on this frequency through a band opening. A few ZLs could improve their 50.110 habits as well. When you think the band may be opening, call on 50.110. As soon as you have confirmed it is open, move to another frequency immediately. Why?

Worldwide, operators call on 50.110 when they hear the first signs of SSB or CW. The only reason to be on 50.110 is to tell others "the band is open". Once that has been established, leave it for the next 'area' to use for the same purpose. But check it yourself frequently because when the skip shifts into a new area, that's the first frequency most people use to call CQ and confirm the band is opening.

50 MHz: MAKING THE MOST OF IT
Part Two of Six
by
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In last month's Part One we compared the DX opportunities on 50 MHz in New Zealand with other perhaps more fortunately located QTHs. The evidence to date suggests ZL may not be as well located for 50 MHz as say JA6.

ZL lies between 34 south and 47 south (Stewart Island). This is comparable with Argentina/Chile from Buenos Aires/Santiago south to LU(W) and CE7 (call prefix) locations.

We are taught to believe, by references such as the ARRL Handbook, the most intense F layer propagation exists in equatorial regions. Intense F layer ionization is important for propagation above 14 MHz (20 meters). The equator circumscribes the earth 'in the middle', of course. Might that not suggest over a period of a year, propagation at 21, 28 and 50 MHz would average essentially the same at say 37 south (Auckland) and San Francisco (37 north)? Won't both locations, over 365 days, see essentially the same propagation 'trends'?

Actually, no. The actual equator is not important to propagation. Something call the Geomagnetic Equator is more important.

The north pole forms one half of a planet sized electrical 'circuit'; the south pole the opposite end or 'side' of the circuit. Radiation from the sun falls into our earth-circuit magnetic-force-fields by passing through elevated flux lines called the Van Allen Belt. This solar radiation acts as a catalyst for the ionization of the ionosphere; we call it the F Layer. The radiation that 'counts', the radiation causing ionization in the F layer, increases and decreases in a cycle nominally requiring 11 years from peak to peak. Hence the so-called 'Eleven Year Sunspot Cycle'.

The north and south magnetic poles virtually control the travel routes of ionizing radiation from the sun as it nears the earth. The north pole's influence is especially significant. It distorts the location of the equator; not the real equator, but the magnetic equator. And the ionizing radiation 'current flow' respects the magnetic equator; not the man-contrived physical equator. This distortion is important because our view of the F layer of the ionosphere starts from the (geo) magnetic equator, not the physical man designated equator.

The magnetic north pole is in upper Canada (76N x 101W), offset from the real north pole. This offset causes the magnetic equator to be set-off from the physical equator. At 0 degrees longitude, the magnetic equator is located at 26 degrees north. At 180 degrees longitude, it is at 7 degrees north.

As radio amateurs, when we view the world through shortwave radio propagation glasses, we need to adjust our 'view' to correspond to the magnetic equator. The physical equator is relatively meaningless, as the F layer forms patterns around and either side of the magnetic equator; not the physical equator.

New Zealand. We are not 34 to 47 degrees south of the magnetic equator; rather we are 41 to 54 degrees south. That is our mis-fortune, placing New Zealand further away from the concentrated F layer ionization which is so essential to 21, 28 and 50 MHz F layer propagation.

In fact, of all of the centers of amateur radio activity in the world, ZL is about as far from the magnetic north pole as you can be. If there is a 'control central' for high MUFs, the magnetic north pole is that spot.

MUF. Maximum Useable Frequency.

Mankind likes everything in life arranged in neat, orderly boxes. Users of shortwave radio frequencies are not a special specie; they too like simple to understand, clear-cut statements. Such as "Here is the frequency/band to use, to talk to Afganistan, at 0300 UTC on Monday the 23rd of September".

The rear pages of Break-In provides us with path/propagation charts each month; as does virtually every other amateur magazine in the world. It seems simple enough; 'pick a time and a distant location, select the apppropriate chart, and then dial up the frequency from the chart'. If these charts are not detailed enough for you, a $5 IBM format PC program entitled MINI-MUF (r) will allow you with a minimum of training to forecast your own best times, best frequencies for any day of the year. Alas, life is never so simple and even the most complex computer programs seldom do better than 50% in the accuracy department.

MINI-MUF asks you for the Sunspot Number or alternately the Solar Flux (number), the date and the time. It also wants to know where you are situated on the globe, and, where you wish to talk. Sunspot (or Solar Flux; essentially separate numerical measurements of the same thing) numbers tell the program the extent of solar activity; or, how much ionizing radiation is present. The program unfortunately makes no allowance for the 'quality' of the radiation; only the quantity. Ionizing radiation contaminated with high X-RAY content is undesireable since the X-RAY content causes the earth's magnetic flux lines to oscillate, creating visible auroral displays, trans-polar radio path fade outs and erratic 'pools' of ionization within the F layer nearer to the geomagnetic equator. In other words, that's not good. A happy ionosphere is a stable ionosphere; one without destablizing X-RAY bombardment from the solar eruptions.

MINI-MUF (and published path predictions) typically assume a 'quiet' magnetic field; one without X-RAY bombardment. We've all observed the ill effects of high magnetic activity; sudden and dramatic shortwave path fade outs, loss of European signals for up to several days, coincidental with greatly enhanced signal levels from Japan and western USA.

A number of scientific observatories measure solar X-RAY emissions using a variety of techniques. Because most (perhaps all) of the undesireable X-RAY energy comes from active sunspot regions on the sun's surface, and as the sunspots can be actually observed from earth 'erupting' (these are called solar flares; think of them as solar volcanos), the correlation between sunspot disturbances and subsequent ionospheric disturbances is well documented.

WWV and WWVH update observed solar eruptions at 1218 and 1818 each day, at a minimum. At 18 past each hour, WWV (2.5,5.0,10,15, and 20 MHz) (and WWVH 10.0 MHz at 45 past the hour) issues a 'state of the ionosphere' report. Three sets of numbers are announced. The first is the Solar Flux number; a barometer of sunspot count. During the fall of 1991, the solar flux ran in the 200-300 range. The second is the 'Alpha Index', so announced. Depending upon your goal in amateur radio, your point of view, and which prophet you believe in, either low numbers (0 to 10) or high numbers (20 and over) are 'best'. The third number is the 'K Index', as announced. It has a minimum of 0 and a maximum of 09. K is a 3 hour-term indication of A change, whereas A is current and timely to the time of announcement. The A may change rapidly from announcement to announcement; the K tells us the 3 hour change in the Alpha index, graduated 0-9.

Solar Flux numbers are updated at least once per day; typically in the 1818 broadcast. A and K updates are done no less often than twice per day, but in periods of high X-RAY and solar flare activity, may be changed up to five times in a day.

A proper discussion of A and K numbers, and their relationship to 15/10 and 6 meter conditions would fill a book. A boring book perhaps, but a book none the less. Suffice to say that thousands of amateurs all over the world studiously jot down the reported solar flux, A and K numbers in notebooks at least once per day. Many become nervous and irritable when their lifestyles interrupt obtaining these three cherished numbers for a 24 hour period. There is, sad to say, an almost cult worship of the three numbers; as if writing down the numbers will somehow validate the entire day's amateur activities.

The fact is no professional, nor amateur, has yet found a solid (as in predictable and repeatable) relationship between any of these numbers and 50 MHz propagation. Yes, the solar flux numbers are slightly relevent since solar flux is a measure of sunspots and unless we have lots of sunspots we won't have high frequency 'skip'. But beyond this obvious relationship, no other apparently exists. There is no magic set or combination of the 3 numbers which guarantees six meter DX. Nor an increase in the price of a pound of honey on the world honey marketplace.

Generally speaking, solar flux numbers above 200 are good for 6 meters but only over averaged terms of several months or more. 28 days of 140 range numbers followed by two days of 200 range numbers does not portend renewed six meter opportunities. A single day of 300+ numbers means nothing to six meters; that day or the next day.

The A numbers reflect just how badly the X-RAY contaminants are chewing up the nice stable ionosphere. Think of the ionosphere as a huge 12 volt battery charged by a solar panel. The battery has a finite but very large capacity for current. Without X-RAYs, it has no drain/load on it.

The higher the solar flux numbers, the greater the charging current to the battery. Day after day, bit by bit, the current available in our battery grows larger and larger and the MUF increases with each new day.

Now think of the X-RAY radiation as enumerated by the Alpha or A number as a short circuit load on the battery. Along comes a burst of X-RAY energy and a percentage of the current in the battery gets dumped by the short circuit load. If the X-RAY energy lasts long enough and is strong enough, the battery grows very weak over several days time. If the X-RAY energy is very strong, the 'load' on the battery dumps current faster than if the X-RAY energy is low in level.

Seemingly a high A number would mean high amounts of short-circuiting X-RAY radiation flowing through the ionosphere. And shortwave conditions would deteriorate.

Our 'ionospheric battery' is, however, highly complex; it has 'cells' which lay close to the geomagnetic equator to which energy that normally stays in 'cells' close to the north or south poles flows during a magnetic event.

So rather than our battery losing current uniformly, some cells (those far north and far south) lose it, but not to a shunt load; the energy in these polar region cells tends to flow or transfer to other cells closer to the magnetic equator.

The net result is polar paths deteriorate while equatorial paths may improve. Not with every magnetic disturbance, but with the majority. That's why the JAs and California stations get so very loud during such an event, as we lose the Europeans (20/15/10 meters). The JA/W6 signals cross through the enhanced equatorial regions where 'cell energy' from the polar areas is now added to the energy stored before the magnetic storm re-arranged 'cell loading'. From our perspective, north-south paths get better while east-west paths go down.

Six meter operators world wide use 28.885 as a 'net' or coordinating frequency. If you want to know anything at all about the current state of six meters, between 1 October and 1 May, tune in 28.885 and listen. Try it around 1800-1900 UTC daily and observe the faithful lining up to exchange their views on the latest (as announced at 1818 UTC) solar flux, A and K numbers. "Anybody got today's numbers?"

Next month: If the numbers may not mean much, what does?

THE TRUTH ABOUT SUNSPOT CYCLES:

'The Truth' is, in spite of esoteric monitoring equipment now available to scientists, experts in this field believe they know and understand less than 1% of what they need to know to comprehend the sun's activities. In other words, several dozen more doctorial thesis will be written dealing with the sun.

What we do know: The sun is a relatively small star as stars go and it has no special characteristics as far as man knows. Italian scientist Galileo Galilei (his father stuttered) noticed dark spots crossing the sun's surface with his naked eye in 1611. Before his fascination with these meandering spots caused him eye problems, he deduced there was a pattern and rhythm to their location on the solar disc, their periodicity and their shape. The Chinese are said to have noticed similar spots on the sun's surface as early as 100 BC. It was not until German chemist Samuel Schwabe began keeping records over decades that the '11 year' sunspot cycle was confirmed. That was in 1843. Prior to that, haphazard sunspot observations were recorded by a handful of scientists in Europe but not on a faithful daily basis as Schwabe did. The subject was very controversial for decades.

Thus accurate day by day visual observations are but 148 years old; the equivilent of less than fourteen complete 11 year cycles. The present cycle is number 22, but that is based on scientists going back 8 additional cycles before Schwabe (to around 1750); data for which is at best short of detail.

If we can properly assume there have been solar cycles since there was a sun formed, obviously our 22 cycles represent only the 'tip' of the solar knowledge iceberg. There is absolutely no reason to believe the past 22 observed cycles represent 'normal' solar activity. Cycles 10,000 years ago, for example, may well have been 20 years or even 20 months long. We don't understand why there are cycles so we can't be sure the present cycles represent normalcy.

One thing we do know is that the cycle is NOT 11 years long; it is 22 years in length. Think of a line drawing of sinewave AC current; positive (+) is above the horizontal line and negative (-) is below the line.

1) Each 11 year period has a strong magnetic field of its own.
2) Each magnetic field has a magnetic polarity, seen in each sunspot.
3) At the beginning of an 11 year period (not cycle) new spots break out on the solar surface at high latitudes such as 60 degrees north.(Picture a round circle such as earth drawn on paper; 0 degrees is the middle or equator, and 80 degrees north or south are near the top and bottom polar ends.)
4) As the years wind forward (year 2,3,4 etc.) the spots that form gradually appear closer and closer to the sun's equator. At the end of 11 years all of the spots are now very close to the equator of the sun.
5) While these 'old cycle' spots are appearing down near the equator, or approximately 11 years after it all started, a new outbreak of spots appears anew at higher latitudes. These new spots represent a new cycle, and;
6) These new high latitude spots have the opposite magnetic field polarity from the 11 year period spots down near the equator.

Thus the 11 year cycle is actually a half cycle; a full cycle is positive to negative to positive again, typically 22 years. It is suggested that negative going spots do not have the same effects on the earth's ionosphere as positive going spots. So if you wish to compare cycles, compare not an 11 year period but 22 year periods, selecting the proper polarity cycle for each. The present (22nd) cycle should be compared to the 20th (1968-69) and the 18th (1946-47), not the 21st (1979-1980) and 19th (1957-58).

If you are a worrying person, consider this: Between 1650 and 1715 no sunspots were noted on the sun's surface. That's none for 65 years or roughly 3 complete 22 year cycles. Can you imagine a six meter band with NO sunspots for 65 years? Can you imagine a 20 meter band with no sunspots for 65 years? Can you imagine how shortwave radio might have developed (or might NOT have developed) if such a 65 year period had occured between 1920 and 1985? Can you imagine NO ham radio other than VHF and UHF short distance communications? So quit your complaining about 'poor conditions' on some days. At least you have conditions to complain about!

50 MHz: Making The Most Of It
Part Three of Six
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In last month's segment we suggested that it is difficult, nay, impossible to pin down a direct correlation between daily announced solar activity measurement numbers and current 50 MHz DX conditions. That 6 meter DX is essentially unpredictable is a part of the lure of the band. And, that the next contact you make could totally rewrite the reference books on wave propagation is a strong magnet to operating on six meters. You may never invent the transistor but you could observe an entirely new and unexplained category of wave propagation.

It is this mystery which attracts many people to the so-called 'Magic Band'. Equally magnetic is the illusive nature of band openings.

Six meter openings fall into three broad propagation categories:

1) E layer or so-called short skip. We work VK, 3D2, FK8 et al on 'short' skip; typically a mid November to mid March phenominon occuring in the E layer. It is also possible to work the same regions on 144 MHz via E skip (or Es, Sporadic-E) but only rarely.
2) F layer; a basic higher frequency extension of the same sort of skip we experience at 14/21 and 28 MHz. This is typically between 1 October and 1 December, again between 1 February and 1 May; paralleled by the best periods of the year for say ten meters.
3) Trans-Equatorial Propagation or TEP for short. This is a sub-set of F layer, occuring at or after sunset essentially in equatorial regions (near the geomagnetic equator) and primarily over paths with a high north-south (versus east-west) alignment. TEP falls essentially in the same month-frame as F layer at 50 MHz.

After a few openings, sporadic-E is at best a way to stay in touch with some semi-distant friends. About the most exciting thing you can do from ZL with Es is work VK6 or VK8 on 'multiple hop'; ie. something over 2,500 Km (the maximum range for single hop). In theory, we might work South America on multiple-hop as well but there have been no reports suggesting this has been observed. Sporadic-E concentrates between 20 and 60 degrees north and south of the magnetic equator; in more than 50 years, it has never been observed actually crossing over the magnetic equator (ie. north by south paths). This means you won't work KH6 or JA on Sporadic E although you might work CE6.

TEP is difficult from ZL because of our distance from the magnetic equator; KH6 is worked between 0500 and 0900 perhaps 15 nights a year in the best year; JA up to 10 nights (typically 0900 to as late as 1330). Reports of ZL working anything other than KH6 or JA on TEP are unknown although in theory nearby KH4 and KH9 are possible. Sporadic E occuring to the north of ZL between 0530 and 1230 (+) can link us to TEP for more exotic DX. Sporadic E linking into TEP can also allow southern ZL (2,3,4) to work KH6 and JA when northern (ZL1) misses out. Pure TEP signals are weak, often fluttery, making CW usually mandatory; slow CW is best when there is heavy flutter fading multiple-paths. Sporadic-E linking to TEP often produces stronger, stable signals for reasons not yet understood. For each night ZL experiences 50 MHz TEP, stations north in A35, 3D2, VK9 have perhaps 3-5 such nights.

Simply stated, ZL is just too far south of the magnetic equator to benefit very often from TEP since it is a 'trans-equatorial' mode of propagation typically extending +/- 20 to 25 degrees from the magnetic equator.

Daylight hour F2 propagation becomes, therefore, our best opportunity to 'work the world' on six meters. The basic 6 meter daylight path F2 layer propagation is nothing more than ten meter propagation occuring less frequently at a higher operating frequency. Once again, our south latitude plays a part in how often we have F2, and to where we have such propagation.

F2 propagation at 50 MHz occurs over single hop distances as near as 2800 Km (such as Townsville-north VK4s) and as far as 4,000 Km (FO5/8). Double hop fills in from 5,600 to 8,000 Km; KH6 for example. Triple hop covers 8,400 to 12,000 Km. Notice how as the number of hops increase the 'zones' begin to fill in; 2800-4000/5600-8000/8400-12,000. The 'distance holes' in our examples are 4000-5600/8000-8400.

Pure daylight F2 demands a sunlit F2 ionospheric layer over the full path. Working FM5WD at 2000 fits for example because in Martinique it is 4PM while it is 8AM in ZL. The ionosphere to your east tends to 'charge' (increase in MUF) very rapidly as the sun comes up. Hearing FO5DR on single hop F2 as early as 1930 UTC is not unusual, indicating that within 1.5 hours of sunrise at the ZL-FO5 path ionospheric mid-point, the MUF has risen from less than 30 MHz to at least 50.

If the sunrise MUF may rise rapidly, the sunset MUF may decline slowly. ZL to JA at 50 MHz on pure F2 (not sporadic E to TEP) as late as 0730 happens. Think again of the F2 layer as a battery; the arriving daylight jolt-charges the ionosphere to leap-frog MUFs high, quickly, while the fading daylight sees a slow 'drain' on the state of ionospheric charge.

Lacking disruptive magnetic storms that throw the ionosphere into a cocked hat, the day to day 'charge' of the ionosphere slowly increases, provided sunspot activity is stable or slowly increasing. If the ionosphere only charged, the MUF would become slightly better day to day. And, this would be a simple life; for if it was observed between ZL and W6 to be 46 MHz one day, 47 the next, and 48 the third day ... chances are good it would be 50 MHz on the 5th day. No such luck.

There are three major variables at work to upset this idyllic situation. First, the solar flux varies, usually slowly from day to day. Since this is a measurement of overall sunspot activity and the companion ionization, the trend (not the actual numbers) from day to day is important. More important than solar flux day to day changes are Alpha and K number changes; the measurement of magnetic activity. Here opinions are diverse.

Alpha numbers below 10 (and K numbers 3 or under) indicate no major magnetic activity has been observed. This also means no solar flares of any significant magnitude. Numbers 20 and over for A and 4 and over for K indicate a solar flare has occured recently enough to currently place excessive X-RAY contaminants into the Van Allen belt and the ionosphere. At the very least, the ionosphere is 'churned up'; unstable.

Some observers feel a disturbed ionosphere is good; others disagree, opting for a quiet magnetic field. The truth is probably someplace in between. Polar region paths (such as ZL to Europe short-path over Asia, long path down over the tip of South America) suffer when magnetic activity is up. At the same time, especially in the day or two or three following a magnetic event, trans-equatorial paths are enhanced. So you can see your view of the worth of enhanced magnetic activity depends upon where you are located, and, what you are trying to work.

The third major variable is the time of year. Seasonal variations occuring because of the changes in earth-sun relationship indirectly set the stage for all MUF activity. Just as it is unlikely you will work G on ten meters in June or July, reliably, it is equally unlikely you will work South Africa reliably on ten meters in January or February. This sort of seasonal change is very apparent on a month to month basis, less apparent (but none the less present) on a day to day basis.

F layer propagation reaching 50 MHz is the very tip of the MUF iceberg. The iceberg is broader below (ie. lower than 50 MHz) which means the MUFs reach lower frequencies (such as 45 MHz) more often, and for longer periods of time; than at 50 MHz. Our Channel 1 TV signals at 45.240, .250 and .260 are excellent, if unintentional 'propagation indicators' (beacons) for 6 meter DXers worldwide. Ws, JAs, even Gs routinely check these 3 frequencies to see if propagation to ZL is possible. Because 45 MHz is lower than 50 MHz, except under very unusual circumstances they will hear the 45 MHz TV carriers before (during) and after any 50 MHz openings to ZL. Unfortunately, they may hear 45 MHz signals for hours (or day after day) with no ZL 50 MHz signals; simply because the MUF stops someplace between 45 and 50.

Australian TV channel 0 signals at 46.171, .240, .250 and .260 are equally important 'indicators'. You will seldom hear VK2/3 or 4 50 MHz signals on Sporadic E (or F layer backscatter) without hearing one or more of these signals first, during and after the 6 meter 'break through'. And depending upon where you are located within ZL, you can also sometimes use our own 45.24/25/26 TV signals as propagation 'beacons'; ZL1 can hear the South Island TV signals (see table) on Es or F layer backscatter, and vice versa.

The region between 40 and 50 MHz is in fact a reservoir of propagation indicators. Between 15 December and 15 April this writer logged more than 600 such separate transmitters on Es, F2 and TEP from every continent. There is significant benefit to carefully monitoring this frequency range several times each day to create your own 'state of the ionosphere' report. Extracts of the 600+ transmitter data base file appear next month. Those listed have been selected because of their frequent appearence and the closely observed tie-in to 50 MHz openings.

The seasonal effects we notice on ten meters become more pronounced as we go higher in frequency; the iceberg analogy. An example:

1) Time of year: mid-March to mid-June
2) Path of interest: ZL to ZS1-6,V51, Z2 and A2
3) Path heading (from ZL) 205 to 215 degrees
4) Indicators: ZS5VHF (28.202(.5); 40-42 MHz 2-way (from 9J, Z2); ZTV Zimbabwe (48.260 MHz); ZS 50 MHz beacons (several).
5) Out of a total of 92 days:

	0400	0430	0500	0530	0600	0630	0700	0730	0800	0830
ZS5VHF	14	36	43	64	72	70	66	42	20	12
40-42 MHz	00	00	03	08	11	12	04	01	00	00
48.260	00	00	00	01	03	03	00	00	00	00
50 MHz	00	00	00	00	00	00	00	00	00	00

You can look at this table and visualize the tip of the iceberg pointing 'down' but never quite reaching 50 MHz. Similar tables could be prepared for virtually every F layer 50 MHz path from ZL. You can also see that if six meters did open to southern Africa during this calendar period, it would most likely be between 0600 and 0700.

Lacking the equipment ability to monitor the full (30) 40-50 MHz region, there are two options: 45 to 50, covered by some of the 6 meter transceivers, and 28 MHz.

45 to 50 MHz contains three important families of indicators:

1) TV carriers at 45.24/25/26 (our own), 46.171/240/250/260 (Australia), 48.240/250/260 (Malaysia/Thailand/Middle East plus Africa and Europe), 49.250 (limited Soviet use) and of course 49.740/750/760 (China and USSR).
2) Cordless telephones which in Central/South America and Southeast Asia must (MUST!) be connected to linear amplifiers; given their signal strengths.
3) Two-way FM (and some AM) services in 'channelized' assignments.

See data here.

The 28 MHz band. A question first; would you check 14 MHz to prognosticate ten meter conditions; or 7 MHz to forecast 14 MHz conditions? Of course not, each has its own perculiar propagation characteristics and other than broad general 'trends' one seldom reflects the conditions of the other. The same statement applies to 28 versus 50 MHz. Strong signals at 28 MHz have about as much chance of indicating 50 MHz conditions as strong signals at 14 will tell you about 28 MHz. It is nearly 'one octave' of frequency between 28 and 50 and that's alot as far as the ionosphere is concerned. So is ten meters useless for forecasting six? Not entirely.

A) 28 MHz skip 'length':

1) Daytime F2 paths follow well known parameters. One of these is skip distance versus maximum useable frequency. When daylight (strong) F2 at ten meters shortens down to 850-900 miles, the MUF at 50 MHz using the same mid-point as the ten meter path will produce 2,500 mile (4,000 Km) signals.

That's the good news. The bad news is that from New Zealand 850-900 miles lands us in the water at ten meters; there are no land mass areas with hams out there to clue us in to what might be happening. The very southern tip of ZL (ZL4) to the very northern tip of ZL (ZL1) just barely makes this criteria. You can listen, however, on ten to see if VK2/3 is working VK4 or 5 with strong F layer contacts; or if ZK1 is working 3D2. But be wary; high MUFs also produce heavy ten meter backscatter and stations well within the 850-900 mile range from one another can easily work on backscatter, misleading you as a distant observer to believe they have F layer direct. The clue is the signal strength; very loud (such as VK2/3/4 to ZL sound on ten meters from mid-morning to late afternoon in the fall) is the relevent indicator. Alas, even signal strength is not foolproof since Sporadic E at ten meters occurs in virtually every month (even if it does not reach 50 MHz) and the two stations could be working on Es rather than F layer.

B) 28 MHz 'Trends':

There are a number of ten meter CW beacons checked daily at ZL0AAA. Information about the signal strength, the quality of the signals is notebook recorded for an eventual data base. From this you develop a 'feel' for what ten meters should 'sound like' when six meters is open or likely to open. It is difficult, nay impossible, to put into words the exact 'sounds of ten' which relate to possible/probable six meter openings, but such 'sounds' do exist. We'll start off here next month.

50 MHz Propagation
Sidebar/box material
For Part #3

A NEW IONOSPHERE COMING?

In as much as our ionosphere depends upon the presence of sunspot originated radiation for much of its ionization, the coming and going of sunspots is of special interest to us as ham radio operators who in turn depend upon the ionosphere.

Although the Chinese first recorded sunspots in about 100 BC, it was not until 1848 that the solar cycle's pattern was apparent to scientific observers on earth. Thus we have less than 150 years of observed scientific data upon which to base our understanding of sunspots and less than 70 years of data from which to compare shortwave radio propagation to sunspot activity. Both periods are mere eyeblinks in terms of solar time.

In the last ten years magnificent instrumentation strides have been made in solar observation. Satellite based observation instruments, mountain-peak observatories on earth have for just ten years been able to derive data about the sun, and its actual movements in space never before possible (vis-a-vis our own tiny solar system, and, our galaxy). Some of the newest findings beg long term study.

For example, the sun does is not actually at the 'center' of our solar system. Sorry, but what you learned in school no longer applies. The center of the solar system is not geometrically determined, as long believed; it is 'mass determined'; ie., the sum of the sun, all of the planets, and all of the moons and asteroids circling the planets or the sun, in their own orbital planes.

The actual center of our universe is being circled by the sun; only it is not a circle, it is more a figure 8. This strange pattern is the result of our solar system constantly moving within itself, and, within our galaxy. So picture a figure 8 in your mind and see how as the sun rounds the bottom of the 8 it begins moving in a new direction in space; back towards the cross over point of the 8. This change-in-direction for the sun happened in 1990. We here on earth are of course dragged along in our own orbital plane seemingly oblivious to the sudden change in our own direction.

Between 1990 and 2000 the sun will be moving in this new direction heading back for the crossover point at the middle of the 8. Scientists refer to this new dirction as a 'backward movement' of the sun. Many scientists believe that while this backward movement is under way, we cannot extrapolate what we have observed about the sun and the ionosphere between 1920 and 1990 and apply that to 1990-2000 (and beyond).

Going back as far as sunspot records go, there have been two previous periods when the sun 'moved backwards'. One was 1810-1813. The other was 1623 to 1633. Between 1633 and 1810 was a period of 177 years. Between 1813 and 1990 is a period of 177 years.

Following both of these periods, the sunspot count nose dived; it actually went to zero for 65 years between 1650 and 1715. A similar short-count followed after 1830. Solar sunspots after the year 2007 may be very short as well for some period of time if the '177 year cycle' insists upon repeating itself!

50 MHz: Making The Most Of It
Part Four of Six
by:
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Ten meter signals may not relate directly to possible 50 MHz openings, but after weeks (months, years) of observing you do see 'patterns'. Let's diffuse some fables first.

Good ten meter signals. ZL2KT suggests after decades on six meters that when you have good ten meter signals between say W and ZL, you probably won't have six meter signals. That's both accurate and logical. Recall that a 2,500 mile 6 meter path via F layer will occur when the ten meter signals refracting from the same path mid-point are down to 850-900 miles. Now consider ZL to W5/6/7; a triple F layer hop path. In each hop, assuming for discussion the signal goes up, refracts and back to earth, we have three 'best' 28 MHz hops of 850-900 miles and best 50 MHz hops of 2,500 miles. You can quickly see that strong signals at ten don't translate to signals at 50 under those conditions.

The best signals at ten, the kind you can't get over because they are so loud, tell you that the MUF between you and the loud distant station is right at or slightly above (not FAR above) 28 MHz. It is the nature of F (and E) layer propagation that the strongest signals over a given path will occur at or slightly below the MUF. You can see this even on six meters over the relatively minor frequency change between 50 and 51 MHz. It is not unusual to have strong JA signals at 50.100 for a half hour, then they fade down in level but do not go out. Move to 51.100 and the strong signals are now 1 MHz higher in frequency. As an aside, when this happens for ZL1 stations, ZL2, 3 and 4 are then able to work JA at 50.1; an example of higher MUFs producing shorter paths at MUF.

For paths of 4 hops and more, this reverse relationship between six meters being open and ten being poor between two given points swings the opposite direction. A six hop path from ZL to G on 50 MHz, for example, may require seven or even 8 hops at 28 MHz. Thus for longer distances both 28 and 50 may work 'equally well' but unknown to you is the number of hops or refraction points along the way; on either band. It doesn't have to work that way, but it may, so the 'ten poor/six may work' theory becomes less relevent as the distances increase.

Ten meters to me is like taking my blood pressure. If checking it reveals 'unusual propagation' of any type, I become more alert to six meter DX possibilities. 'Unusual' is a wide stroke brush. It might include:

1) Echoes on the VK2RSY beacon (28.261[.5]). Echoes denote multi-path propagation (ie. signals are arriving to me from more than one direction). The more severe the echo, the more significant the event. This suggests 28 MHz MUFs over a wide area of the earth; if a sizeable portion has 28 MHz, might more than normal have 50 MHz?
2) Or, ten meter beacons in Europe are in (a) early, (b) significantly stronger than normal, (c) without flutter fading. Because early suggests higher MUFs than normal, stronger suggests more intense ionization over the full 6 hops, and a lack of flutter indicates a quiet magnetic field in the far northern latitudes the signals pass through on 'short path', I am watchful.
3) Middle and eastern Africa signals in the 1900-2100 time frame, without flutter. This says the MUFs at the nighttime edge (it will be near to midnight or midnight at the African end) have held up 'late'; something that happens only when the daytime MUFs have been unusually high (remember the ionosphere is a battery that charges [MUF rises] fast at sunup but dissipates slowly at dusk locally. If it is higher than normal, the slow dissipation will hold up MUFs to or above 28 MHz for longer at the eastern end.) This tells me the still daylit middle portion, over the Atlantic, Americas and eastern Pacific will also be higher than normal.

The 28 MHz key is to know what is normal, then to recognize what is abnormal. You can do this by spending perhaps 30 minutes a day checking and recording carefully what you observe in the early morning, and again in early evening. You probably won't find a simple one to one relationship in anything you hear at 28 MHz; you should find trends that tell you when to pay more attention to 6 meters and when you can go days without ever turning on the six meter gear.

The 28.885 six meter information gathering frequency is very valuable in this regard. If Europeans have experienced a better than typical day between 1100 and 1500 UTC, and the Americas have also had better than average conditions between 1400 and 1900, the odds are you will find six in fine condition in New Zealand from 2000 onwards for several hours. High MUFs move with the sun and by listening on 28.885 between 1800 and 2000 you can deduce from the traffic how that-day-UTC has gone up to that point. Be wary, however; during late March-May, and late August-September, ZL enjoys DX when the other regions may be bone-dry.

30 to 50:

If you have a receiver capable of tuning 30-50 MHz, this is probably the most valuable 'analysis tool' available. An FM only receiver (such as a scanner) is adequate but be advised many Asian and Central/South American FM (and AM) two-way systems do not land on nice even operating frequencies. An ICOM 575 is close to perfect with 1 kHz read out on FM, AM, USB and LSB capabilities in addition to CW. USA two-way channels are in 20 kHz steps starting every MHz. Japanese however are in 25 kHz steps for FM and 10 KHz steps for AM. The FM begins on the MHz; the AMs start at MHz plus 3 KHz, creating 35.003, 35.013, 35.023 and so on. Central Americans and northern South Americans offset by amounts designed to reduce skip QRM from USA stations; 40.048 or 40.335 or 44.350 for example places them in between 40.040/060,40.320/340, and 44.340/360. Soviets and Koreans seem to follow the 25 KHz spacing of Japan but they also have some odd-ball offsets.

Receivers that will scan in 20 or 25 KHz steps will therefore miss some of the potential indicator targets; especially Central and South America. Those that scan in 5 KHz steps do better and even 40.448 will lock up at 40.445 or 40.450 although the audio will be muddy.

It is the nature of two-way radio transmissions that (1) transmissions are brief, (2) often 'coded' in numbers or special trade languages (the oil well riggers in Louisiana would be perfect cypher operators; nobody would ever 'break' Cajun-English-French using their peculiar oil rigging 'language terms'!). My own data base of 600+ transmitters shows a time frame; the earliest a particular transmitter has been heard, and the latest. Over several months the 'regulars' shift in time as the sun-earth angular relationship changes with the seasons. An example:

1) Frequency: 40.530
2) Transmissions: Wideband data, multiplexed (MPX) at 2.1 KHz; up to 10 KHz wide; continuous but very occasional unmodulated A0 carrier.
3) Probable Transmitter Location: New England (USA), Quebec in Canada
4) When Heard:
   January 1991: 1915 to 2030 (earliest/latest) [75 minute span]
   February 1991: 1900 to 2040 [100 minute span]
   March 1991: 1845 to 2205 [200 minute span]
   April 1991: 1955 to 2212 [137 minute span]

Now, how does this help?

Let's say the MUF between my location and this transmitter reaches 40.530 at 1845 UTC. If the signal stays in until 2205, there is a total of 200 minutes between those two points during which the MUF can continue to build up to the highest frequency it will reach between the two defined points, peak, and then slowly go back down to 40.530 (and below; when the signal fades out). Someplace in that 'window' the MUF will peak. Let's say it is linear, for discussion, so at 1845 plus 100 minutes the MUF on this path will be at its highest frequency. That's 2025 'peak'. This suggests the optimum window to work W1 from ZL on 50 MHz is plus or minus 2025 during the month of March.

Now we can refine that somewhat.

1) Frequency: 48.360
2) Transmissions: FM 2-way
3) Probable transmitter location: New England, New York, Pennsylavania (USA)
4) When heard:
   January 1991: Not heard
   February 1991: 2030-2042 [12 minute time span]
   March 1991: 2028-2055 [27 minute time span]
   April 1991: Not heard

If the assumption about both transmitters coming from the 'same' (as within 250 mile radius) location is correct, here you see the 'tip of the iceberg' discussed in Part 3 at work. By using just 40.530 data we assumed the rise to peak MUF, and the fall were linear; ie. evenly spaced either side of the peak. But if we find the 'mean time' for 48.360, it is later than the 2025 mean peak of 40.530 MHz; 2041 to be exact. Even this may be too 'loose' a calculation if you remember that most longer haul six meter propagation tends to last just a few minutes.

If the 200 minute window at 40.530 has become a 27 minute window at 48.360, it is fair to assume the 50.110 MHz window will be shorter still. Maybe 90 seconds? How much of the iceberg's tip is at 50 MHz? Work them fast, exchange and confirm only the vital call and signal report data and then IF the band is still open, tell the guy about your rig and weather. It's pretty basic. But, and this is the big one, you've got to catch the iceberg tip when it happens. Sitting there listening on 50.110 and assuming the guy on the other end will say something every minute or so, to check if the band is open someplace, is pretty risky business.

Each of us has to create our own record keeping and analysis system. Telling you exactly how I do it won't translate to you if your receiver is an FM scanner with 25 KHz steps or you live so close to a channel 1 TV transmitter that all you hear from 43 to 51 megs is TV hash every 15 KHz.

(The ZL0AAA 40-50 MHz list is available if you would like it as a foundation. It is in Microsoft WORKS [Spreadsheet] format. A clean 3.5" disc and a suitable stamped envelope to the author will bring a hard copy. If you prefer a print out, there are 13 sheets of condensed print arranged as the example here shows; a hefty stamped self-addressed envelope please!)

And a word about automatic scanning versus hand tuning. I have found that between my two antennas (a 3 element ten meter beam; a 3 element six meter beam), the ten meter beam shows proper directivity and best performance up to 43 MHz. The six meter beam is best and progressively better from 43 to 50 MHz.

Diligent 'band scanning' cannot be done in an electronic scan mode; there are too many TV birdies, computer carriers and DX signals to stop at in the scan mode. By hand, it takes longer but by tuning 40-50 and back to 40 again making appropriate written notes along the way, in ten to fifteen minutes time you have an excellent picture of a moderately active 10 MHz segment.

I do program in the ten meter beacons, and certain spot frequencies such as 35.680, 40.680, 43.200, 43.600, 46.171, 48.240, 48.250, 48.260 and 49.750. Each of these is relevent to general condition indications.

With the spot frequencies noted, you can tell if anything unusual is going on within 60 seconds at any time of day. Here's how.

35.680: A tone call/voice pager frequency in use in USA plus Pacific. Signals here won't tell you where they are from but you will quickly determine the MUF is above 28/29 MHz. In seconds.

40.680: Also a tone and voice pager channel with several in Australia as well as one in New Zealand (South Island) plus USA.

43.200: A much used voice/tone call pager frequency in the USA. When the band is open it often sounds like a CB calling frequency. Read signal levels versus time here as a reference.

43.600: Another, less used (there are many more channels in this range) pager channel; a better tip off for eastern USA than western.

46.171: TV transmitter near Brisbane; important indicator all year long.

48.240: Malaysian, European TV channel video frequency.

48.250: Thailand, Malaysia, European TV channel video frequency.

48.260: Malaysia, European, African TV channel video frequency.

49.750: TV transmitters in China, USSR, Laos. Actually spread from 49.736 to 49.764 with .750 a good monitoring spot. An alert to JA six meter openings (but not always!).

Next month, the incredible Sporadic E link-up.

50 MHz Propagation
Sidebar/box material
Use with Part #4

BEACON/INDICATOR DATA:

Ten meter beacons are genuine aids in determining the general 'blood pressure' of the ionosphere; even if they do not extrapolate directly to six meter band openings. My own receiver has 10 memory positions reserved for these beacons; they are checked several times each day and when each is heard a data base entry is made concerning the level of signal, the presence (if any) of multi-path, and the fade rate. Those chosen (and the reasons why) are as follows:

1) 28.201(.6) / ZS5VHF. Heard almost exclusively on a path south of Australia across the Antartic southern pole magnetic field. A valuable indicator of southern magnetic activity (when ZS5VHF has no flutter /auroral QSB, watch out!)
2) 28.204(.0) / DL0IGI. Heard primarily on a heading of 340 degrees from New Zealand but also heard on paths of 30 degrees and 140 degrees. Represents antipodal reception through both north and south polar magnetic fields.
3) 28.220(.0) / 5B4CY. Heard primarily on heading of 300 degrees but also heard on heading of 200 degrees across southern polar region.
4) 28.224(.0) / KW7Y. Washington state, excellent indicator of north-south conditions across Pacific from western USA.
5) 28.224(.5) / PY2AMI. Heard from time to time from almost every direction and often in for 18 hours per day.
6) 28.248(.8) / EA3JA. The most important beacon of all; heard over both poles, across Indian Ocean, across USA and Caribbean. Invaluable.
7) 28.252(.5) / OH2TEN. Excellent indicator of far northern path across Asia; sometimes heard all alone from Europe, over north pole.
8) 28.261(.5) / VK2RSY. Heard on backscatter up to 20 hours per day; also heard on direct F2 April-May, and on Es December-February.
9) 28.270(.0) / VK4RTL. Heard direct on F2, Es; invaluable tip-off to Sporadic E towards northeastern Australia; in turn a link to TEP.
10) 28.296(.0) / WA4DJS. Most important USA/North American beacon; heard short and long paths; its southern location (South Florida) makes it possible to hear when all other stateside signals are gone. When you canNOT hear it, but you can hear other USA beacons (such as W3VD, WC8E) watch for a Caribbean six meter opening.

Remember - ten meter signals (beacons or otherwise) by themselves do not translate directly to six meter conditions. But the sum of them, taken against a plot of 'what is normal for this time of day, this time of year?' is always meaningful; especially when what you are hearing is NOT normal!